Scatter Plot with Empty Circles Using Random Distribution

Aim

To create a Python program that draws a scatter plot with empty circles using a random distribution in X and Y coordinates.

Algorithm

1. Import necessary libraries (matplotlib.pyplot and numpy).
2. Generate random data for X and Y coordinates using numpy.
3. Create a scatter plot using matplotlib's scatter function.
4. Set the marker style to 'o' (circle) and facecolors to 'none' for empty circles.
5. Set labels for X and Y axes, and add a title to the plot.
6. Display the plot.

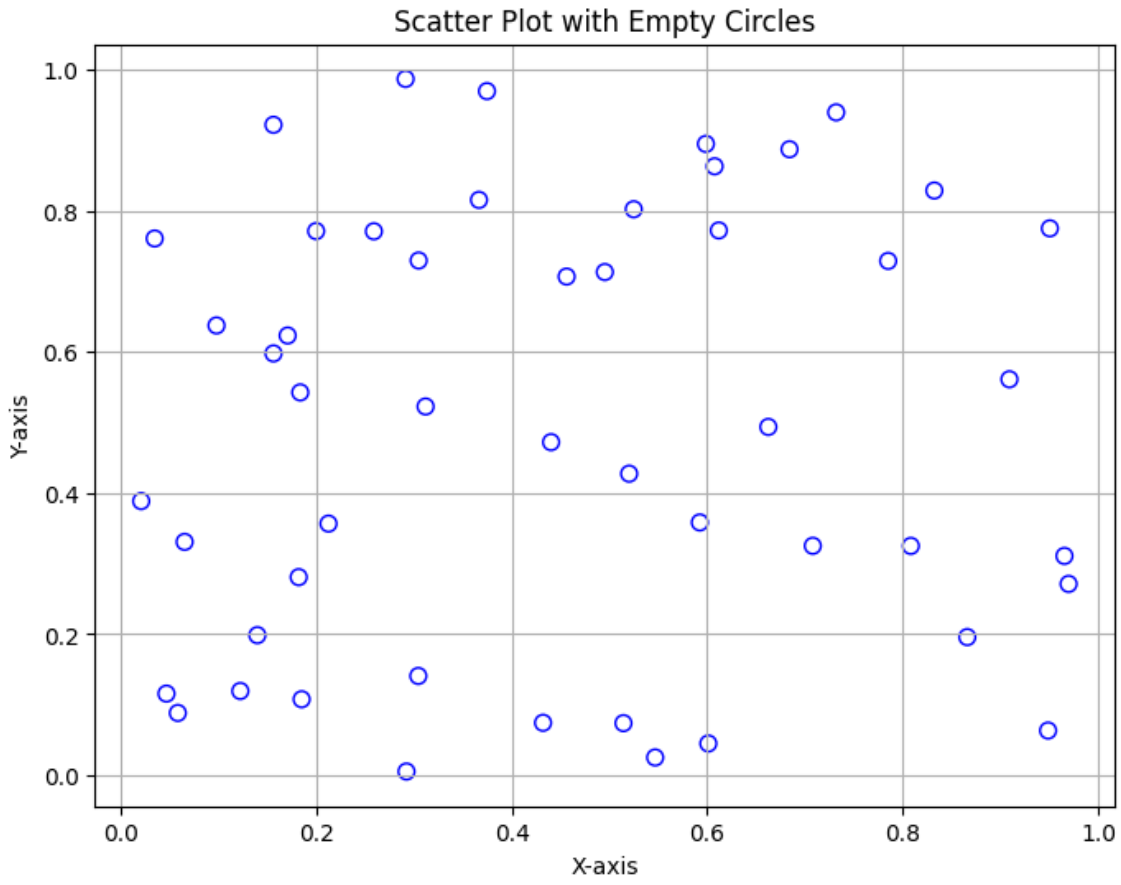
Code

```
import matplotlib.pyplot as plt
import numpy as np

np.random.seed(42)
x = np.random.rand(50)
y = np.random.rand(50)

plt.figure(figsize=(8, 6))
plt.scatter(x, y, s=50, marker='o', facecolors='none', edgecolors='b')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Scatter Plot with Empty Circles')
plt.grid(True)
plt.show()
```

Output



Result

The program successfully creates a scatter plot with empty circles using random distributions for X and Y coordinates. The plot displays 50 data points represented by blue-outlined circles against a grid background. This visualization effectively demonstrates the distribution of randomly generated data points in a two-dimensional space.